$Ag^+ + Cl^- = AgCl\downarrow$

Ag^+ [illegible] Cl^- [illegible]

AgCl [illegible]

[illegible]

[illegible]______________①②③[illegible]__________

______[illegible]④⑤⑥[illegible]______________[illegible]　⑦⑧⑨

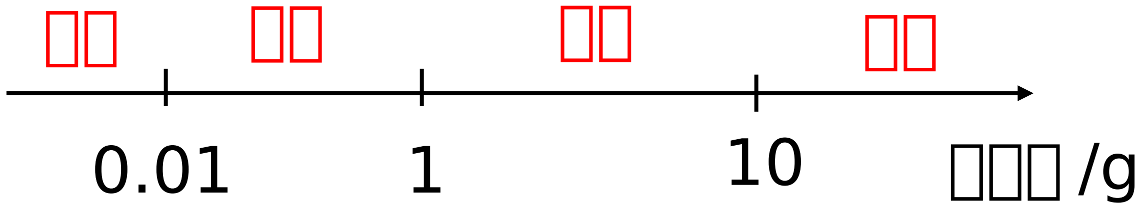
①NaCl　②NaOH　③H_2SO_4 [illegible]

④$MgCO_3$　⑤$CaSO_4$　⑥$Ca(OH)_2$ [illegible]

⑦$CaCO_3$　⑧AgCl　⑨$Mg(OH)_2$

P_{61} [illegible] (20°C)

[illegible]	[illegible] /g	[illegible]	[illegible] /g
AgCl	1.5×10^{-4}	$Ba(OH)_2$	3.89
$AgNO_3$	222	$BaSO_4$	2.4×10^{-4}
AgBr	8.4×10^{-6}	$Ca(OH)_2$	0.165
Ag_2SO_4	0.796	$CaSO_4$	0.21
Ag_2S	1.3×10^{-16}	$Mg(OH)_2$	9×10^{-4}
$BaCl_2$	35.7	$Fe(OH)_3$	3×10^{-9}



[illegible] **0** [illegible]

[illegible] **1×10^{-5} mol/L** [illegible]

[illegible] **AgCl** [illegible]

[illegible]

$$AgCl(s) \rightleftharpoons Ag^{+}(aq) + Cl^{-}(aq)$$

[illegible] [illegible]

[illegible] [illegible]

1 [illegible]

[illegible] 1 [illegible]

[illegible] 2 [illegible]

[illegible] $AgCl(s$[illegible]$\rightleftharpoons Ag^{+}(aq) + Cl^{-}(aq)$

[illegible]“[illegible]”

[illegible] 3 [illegible]

2. □□□□□□□□□□□□□□□□□

□1□□□□□□□□□□□□

□2□□□□

□ 1.$AgCl(s□ \rightleftharpoons Ag^{+}(aq) + Cl^{-}(aq)$

① □□□□　　　　②□□□□

③□$AgNO_3$□□□**NaCl**□　④□**NaI**□**s**□

□□.

1.□□□□□□□□□□$Mg(OH)_2$□□□□□□□□□□

$Mg(OH)_2(s□ \rightleftharpoons Mg^{2+}(aq) + 2OH^{-}(aq)$

2.□□□$BaCO_3$□□□□□□□$BaSO_4$□□□□□□

3. [illegible]

[illegible] 1 [illegible]

$$AgCl(s) \underset{[illegible]}{\overset{[illegible]}{\rightleftharpoons}} Ag^{+}(aq) + Cl^{-}(aq)$$

[illegible]:

$K_{sp}(AgCl)=C(Ag^{+})\cdot C(Cl^{-})$ [illegible]

[illegible]

[illegible] AgCl [illegible] AgBr [illegible] AgI [illegible] K_{sp} [illegible]

[illegible] 2 [illegible] K_{sp} [illegible] Q_c

[illegible] 1 [illegible] $Q_c > K_{sp}$ [illegible]

[illegible]

[illegible] 2 [illegible] $Q_c = K_{sp}$ [illegible]

[illegible]

[illegible] 3 [illegible] $Q_c < K_{sp}$ [illegible]

. □ 5mL 1×10^{-5} mol/L □ $AgNO_3$ □□□ 15mL 4×10^{-5} m

$_2CrO_4$ □□□□□□□□□□□□□

□ $K_{sp}(Ag_2CrO_4)$ □ 9.0×10^{-12} □

□ 2. □□ $K_{sp}(AgCl)$ □ 1.56×10^{-10} □ $K_{sp}(Ag_2CrO_4)$ □

9.0×10^{-12} □

□□ AgCl □ Ag_2CrO_4 □□□□□ Ag^+ □□□□□□□□□

□□． 某温度时，$BaSO_4$在水中的沉淀溶解平衡曲线如图所示．

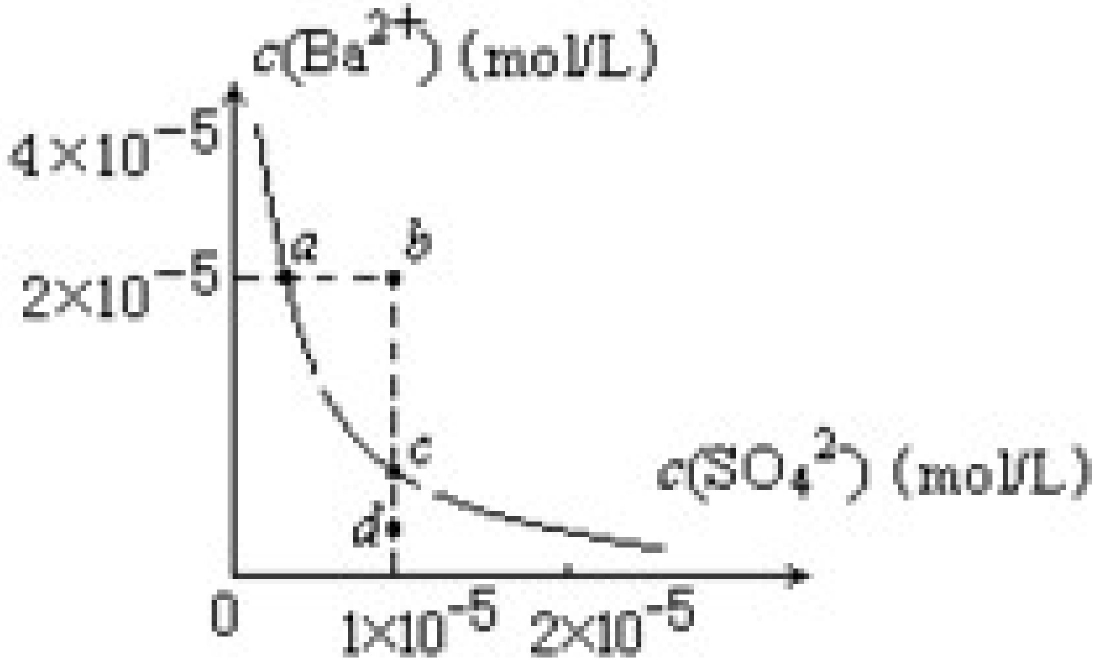
下列说法正确的是 （ C ）

A．加入Na_2SO_4可使溶液由a点变到b点

B．通过蒸发可以使溶液由d点变到c点

C．d点无$BaSO_4$沉淀生成

D．a点对应的Ksp大于c点对应的Ksp



[[illegible]]

1[illegible]

(1)[illegible] K_{sp} [illegible] (×)

(2)K_{sp} [illegible] (√)

(3)[illegible] K_{sp} [illegible] (√)

(4)[illegible] Q_c [illegible] K_{sp} [illegible] (√)

(5)$BaSO_4$ [illegible] $BaSO_4$ [illegible] (×)

(6)[illegible] $PbI_2(s) \rightleftharpoons Pb^{2+}(aq) + 2I^{-}(aq)$ [illegible] K_{sp} [illegible] $c(Pb^{2+})\cdot c^{2}(I^{-})$ (√)

□□□□□□□□□□□□

1. □□□□□

□□□□□□□□□□□□□□□□□□□□□□ pH □□ $Q_c > K_{sp}$ □□□□□□□

① □□ pH □□

□. □□□□□□□□□□□□□

□□□□□□ pH □ 7~8 □□□□□□□□□□□□□□□□

② □□□□□□

□. □□ Cu^{2+} □ Hg^{2+} □□□□□□

□ Na_2S □ H_2S □□□□□□□ Cu^{2+} □ Hg^{2+} □□□□□□□□□

□ CuS □ HgS □□□

□□□1.□□□$MgCl_2$□□□□□□Fe^{3+}□□□□□□□□□□□□□□□

□□□□□(　　　)　　　　D

A□$NH_3·H_2O$　　　　B□NaOH

C□Na_2CO_3　　　　D□$MgCO_3$

□□□□MgO□$Mg(OH)_2$□

□□□□$MgCl_2$□□□□□□Fe^{3+}□Fe^{2+}□

2 [illegible] $Cr(OH)_3$ [illegible] $K_{sp}=10^{-32}$ [illegible] Cr^{3+} [illegible]

[illegible] 10^{-5}mol/L [illegible] pH [illegible] __5______

3 [illegible] $Cu(OH)_2$ $Ksp=1\times10^{-19}$ [illegible]

[illegible] $CuSO_4$ [illegible] $c(Cu^{2+})=0.1$mol/L [illegible]

$Cu(OH)_2$ [illegible] pH=______5______ [illegible]

Cu^{2+} [illegible] pH=______7______

2. □□□□□

$Q_c < K_{sp}$ □，□□□□□□；

□1. $Mg(OH)_2$ □□□□□□ NH_4Cl

□□ $Mg(OH)_2$ □ 2HCl □ $MgCl_2$ □ $2H_2O$

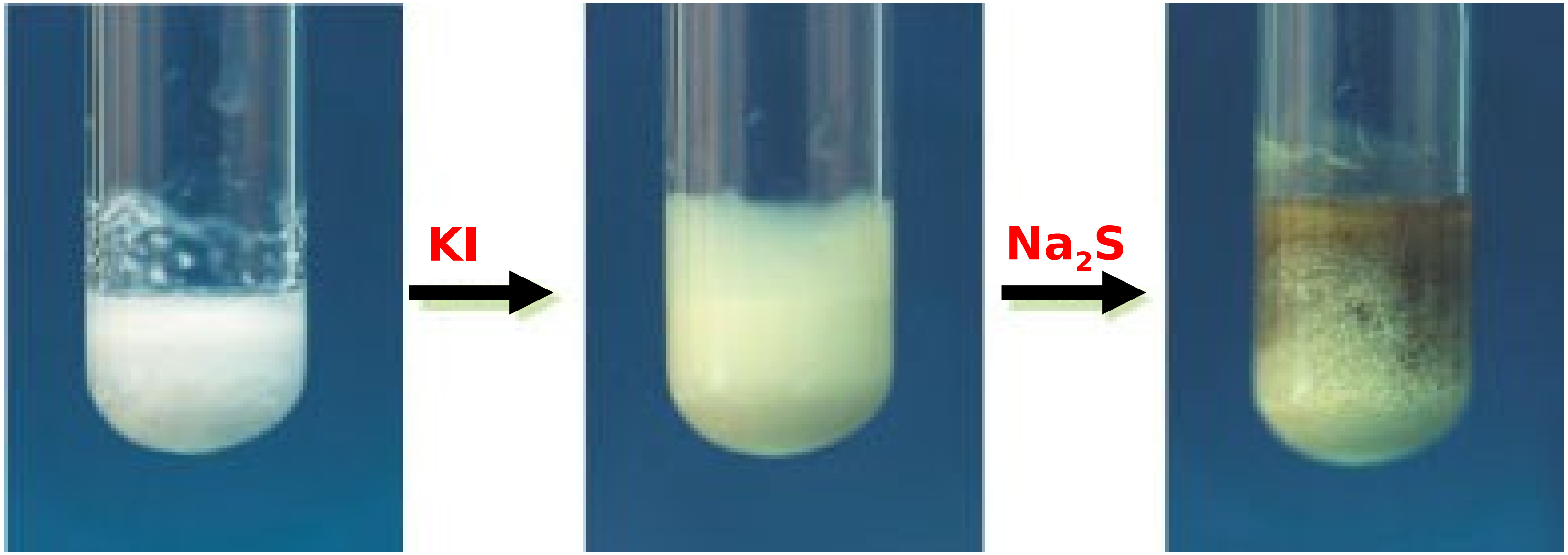
$Mg(OH)_2$ □ $2NH_4Cl$ □ $MgCl_2$ □ $2NH_3 \cdot H_2O$

2. □□□ $BaCO_3$ □□□□□□□ $BaSO_4$ □□□□□□

□□□□ $BaSO_4$ □“□□”□□□□ $BaCO_3$

3. [illegible]

[illegible] [illegible] [illegible]



$AgCl$ **AgI** **Ag_2S**

[illegible]

$$AgCl(s)+I^-(aq)=AgI(s)+Cl^-(aq)$$

$$2AgI(s)+S^{2-}(aq)=Ag_2S(s)+2I^-(aq)$$

[illegible]

[illegible]	K_{sp}	[illegible] /g
AgCl	1.56×10^{-10}	1.5×10^{-4}
AgI	7.7×10^{-13}	9.6×10^{-9}
Ag_2S	6.3×10^{-50}	1.3×10^{-16}

[illegible]

[illegible]

[illegible]. K_{sp} [illegible] K_{sp} [illegible]

[illegible] $BaSO_4$ [illegible]

[illegible] $NaCO_3$ [illegible]

[illegible]

[illegible]

. $BaCO_3$ [illegible] $BaSO_4$ [illegible] CO_3^{2-} [illegible] SO_4^{2-} [illegible]

[illegible]

$K_{sp}(BaCO_3)$ [illegible] 5.1×10^{-9} [illegible] $K_{sp}(BaSO_4)$ [illegible] 1.1×10^{-10} [illegible]

① [illegible] Na_2SO_4 [illegible]

② [illegible] Na_2CO_3 [illegible]

[illegible]:

1. [illegible]

[illegible] $CaSO_4$ [illegible]

[illegible] Na_2CO_3 [illegible]

[illegible] $CaCO_3$ [illegible]

$$CaSO_4 \rightleftharpoons SO_4^{2-} + Ca^{2+}$$

$$+$$

$$CO_3^{2-}$$

$$\downarrow\!\uparrow$$

$$CaCO_3$$

2. [illegible] Cu^{2+} [illegible] Hg^{2+} [illegible] Pb^{2+}

[illegible] FeS [illegible] MnS [illegible] Na_2S [illegible] H_2S [illegible]

[illegible] Cu^{2+} [illegible] Hg^{2+} [illegible] CuS [illegible] HgS [illegible]

3. □□□□□□□□ K_2CrO_4 □□□□□□ $AgNO_3$ □□□□□□□□□□

Cl^- □□□ Ag^+ □ CrO_4^{2-} □□□□□□□□□□□□□□□□□□□□□□

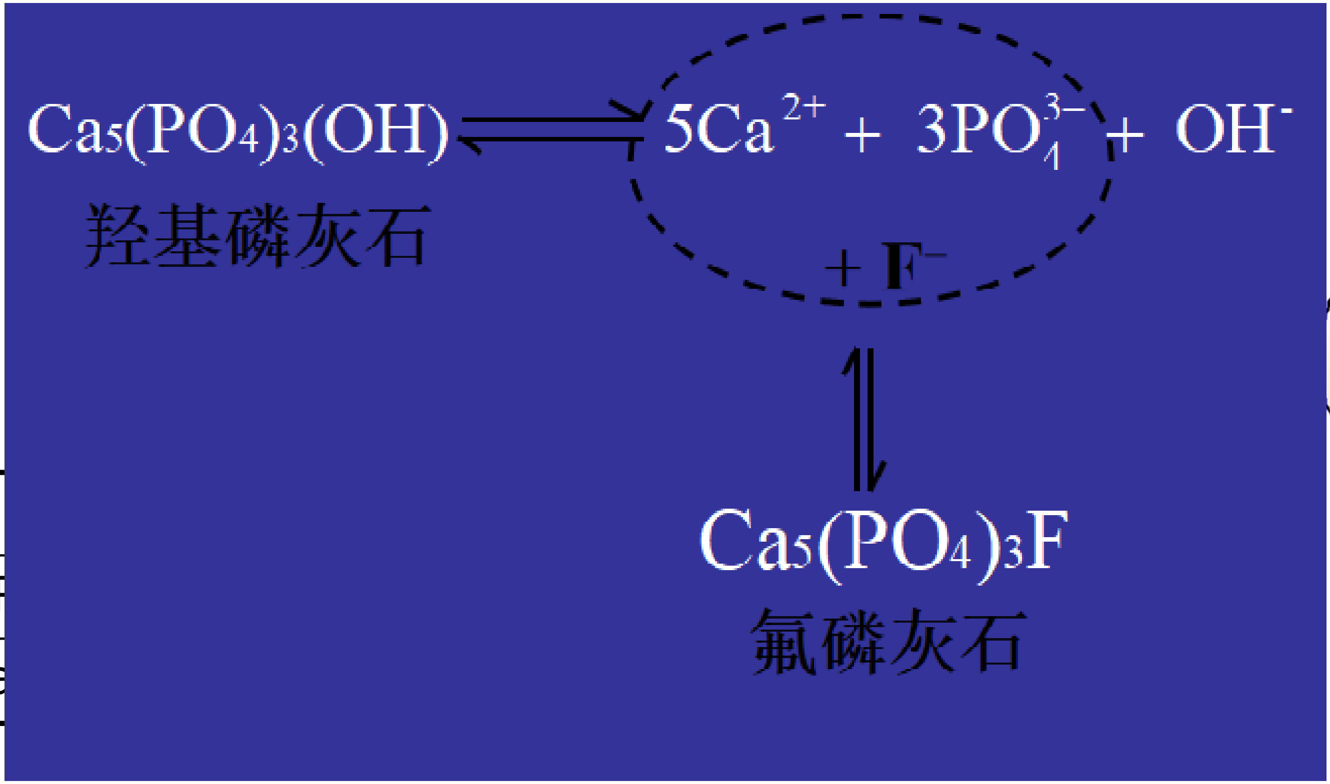
Cl^- □□□□□□ (□□□□ 1.0×10^{-5} mol·L^{-1}) □□□□□ $c(Ag^+)$

□ ______**2.0×10⁻⁵**______ mol·L^{-1} □□□□□□ $c(CrO_4^{2-})$ □□

______**5×10⁻³**______ mol·L^{-1} □ (□□ Ag_2CrO_4 □ AgCl □ K_{sp} □□

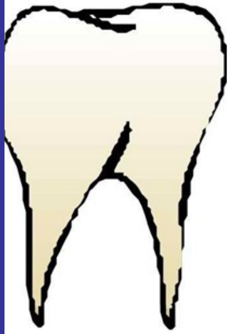
□ 2.0×10^{-12} □ 2.0×10^{-10}) □

P66



$Ca_5(PO_4)_3(OH) \rightleftharpoons 5Ca^{2+} + 3PO_4^{3-} + OH^-$
羟基磷灰石
$+ F^-$
$Ca_5(PO_4)_3F$
氟磷灰石

$Ca_5(P$
Ca



- [illegible] $Ca_5(PO_4)_3OH$ [illegible]
  [illegible]
- $Ca_5(PO_4)_3OH$（s）$\rightleftharpoons$ 5 Ca^{2+}（aq）$+3PO_4^{3-}$（aq）$+OH^-$（aq）[illegible]
  [illegible]

  [illegible] OH^- [illegible]
- ______________________________ [illegible]
- [illegible] $Ca_5(PO_4)_3F$（s）[illegible]
  [illegible] $5Ca^{2+}+3PO_4^{3-}+F^-=Ca_5(PO_4)_3F\downarrow$ ______________________________ [illegible]

[illegible] 1 [illegible]

[illegible]

[illegible] $K_{sp}(BaCO_3)$ [illegible] 5.1×10^{-9} [illegible] $K_{sp}(BaSO_4)$ [illegible] 1.1×10^{-10} [illegible] (　　)

A [illegible] $K_{sp}(BaCO_3)>K_{sp}(BaSO_4)$

D

B [illegible].

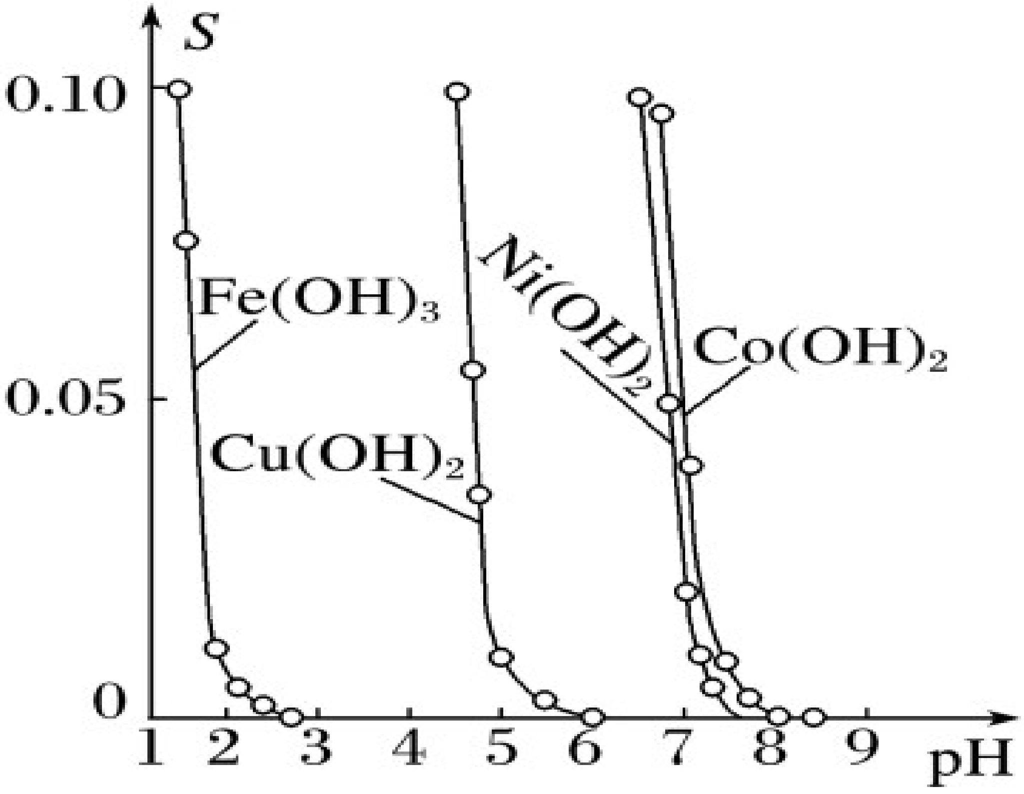
C [illegible] $c(Ba^{2+})$ [illegible] 1.0×10^{-5} $mol\cdot L^{-1}$ [illegible].

D [illegible] 0.36 $mol\cdot L^{-1}$ [illegible] Na_2SO_4 [illegible].

2 [illegible] pH [illegible] (*S*) [illegible] (　　　　)

A [illegible] pH [illegible] 3 [illegible] C [illegible] Fe^{3}[illegible]

B [illegible] $Ni(NO_3)_2$ [illegible] Co^{2}[illegible] pH [illegible]

C [illegible] Fe^{3}[illegible] Cu^{2}[illegible] pH [illegible] 4

D [illegible] Cu^{2}[illegible] Ni^{2}[illegible] $Ni(OH)_2$ [illegible]